

Observations and Projections of Heat Waves in South America

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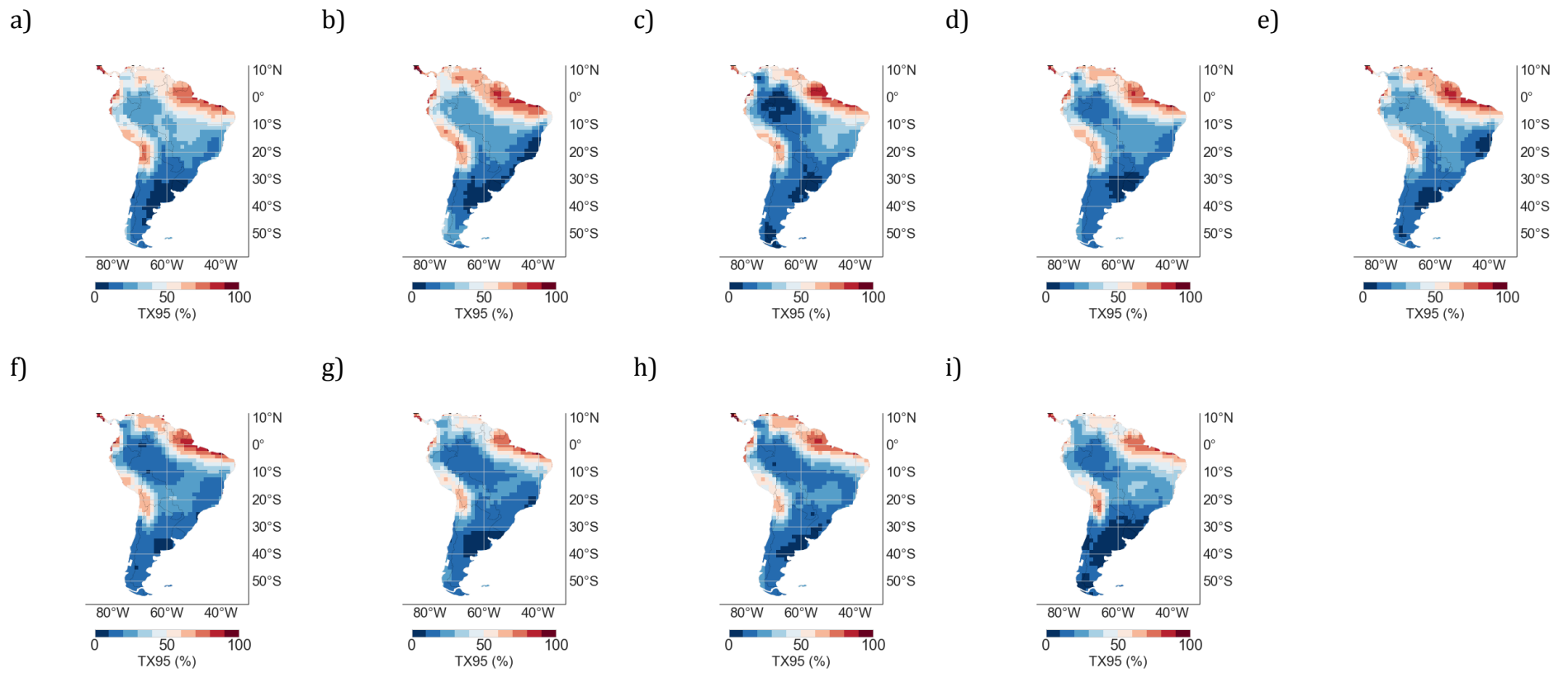


Fig. S1. TX95 estimates by midcentury (2046-2055) computed by using different ensemble members of the CSIRO-Mk3-6-0 model: a) r1i1p1; b) r2i1p1; c) r3i1p1; d) r4i1p1; e) r5i1p1; f) r6i1p1; g) r7i1p1; h) r8i2p1; i) r9i1p1. Plots were generated by using PYTHON's Matplotlib Library⁹².

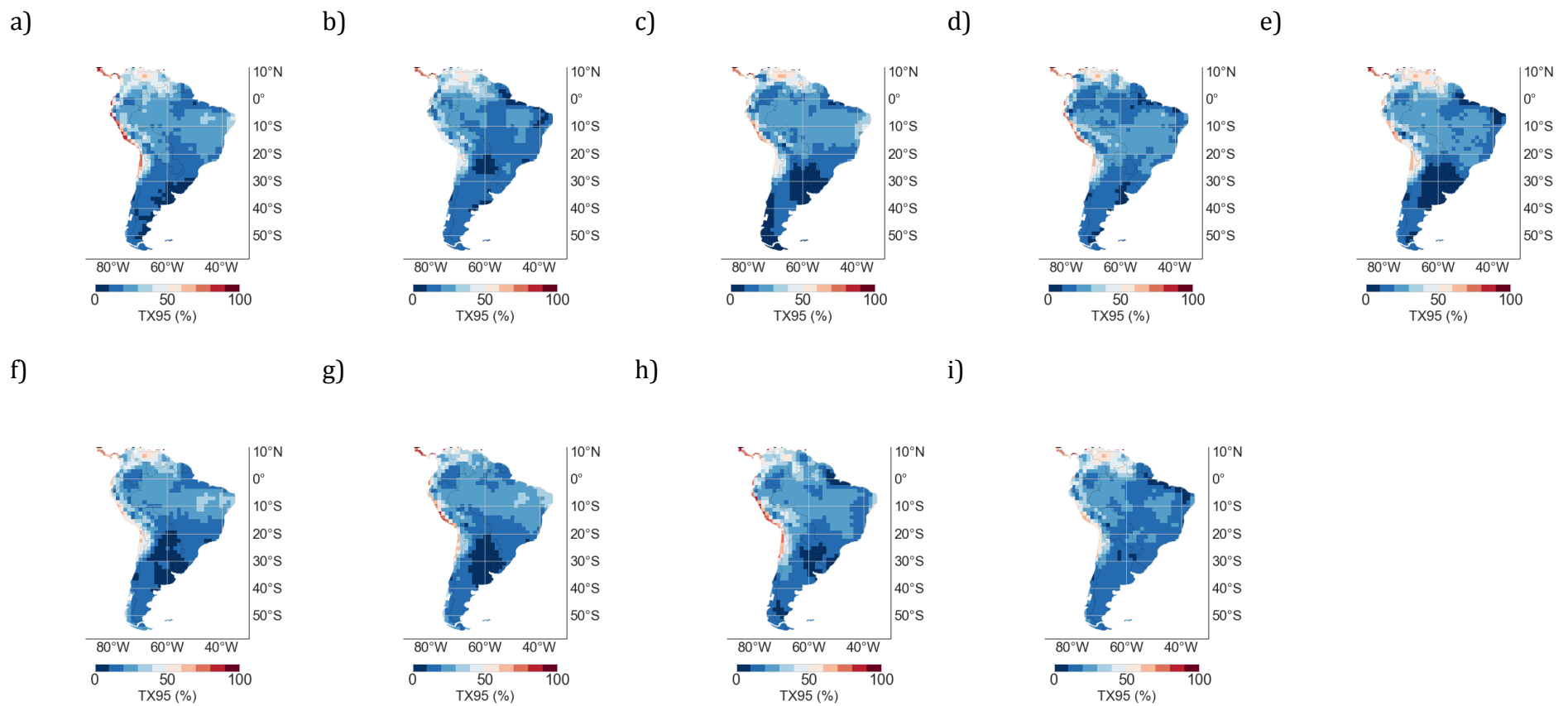


Fig. S2. TX95 estimates by midcentury (2046-2055) computed by using different ensemble members of the EC-EARTH model: a) r1i1p1; b) r2i1p1; c) r5i1p1; d) r7i1p1; e) r8i1p1; f) r11i1p1; g) r11i1p1; h) r11i2p1; i) r14i1p1. Plots were generated by using PYTHON's Matplotlib Library⁹².

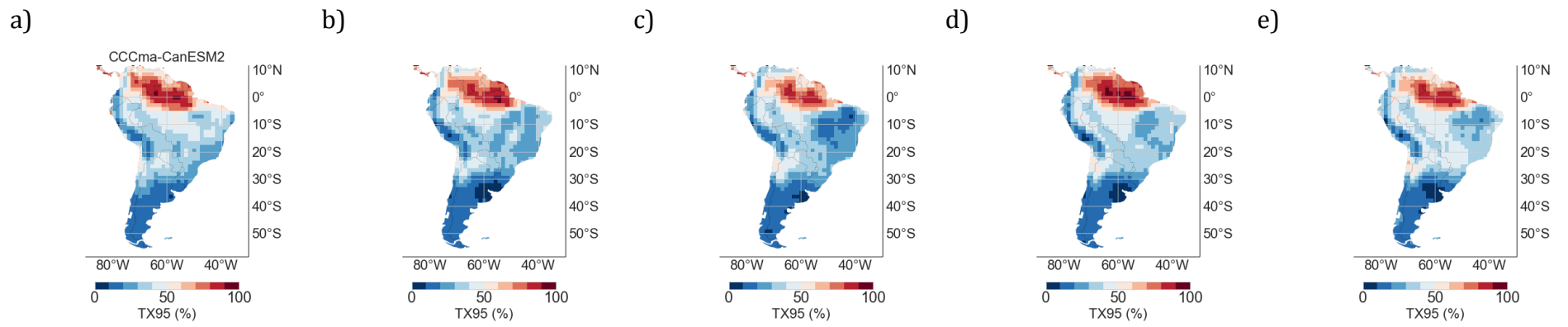
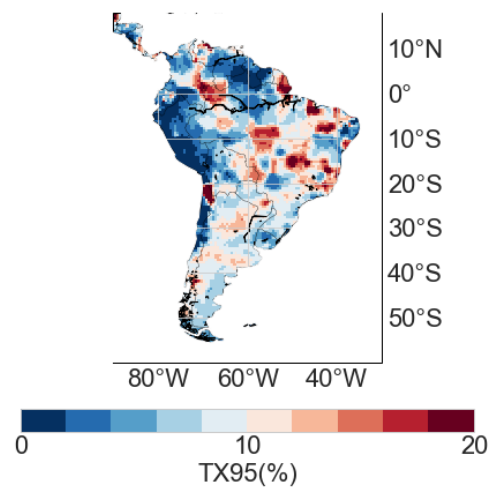
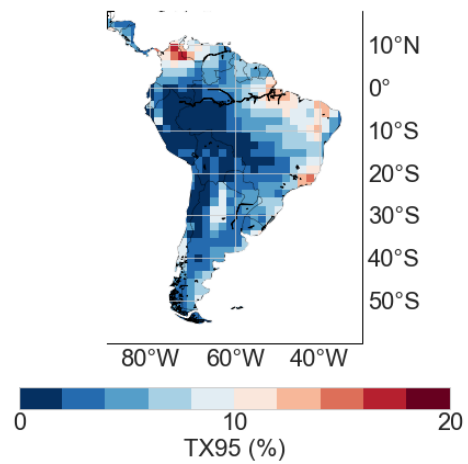


Fig. S3. TX95 estimates by midcentury (2046-2055) computed by using different ensemble members of the CanESM2 model: a) r1i1p1; b) r2i1p1; c) r3i1p1; d) r4i1p1; e) r5i1p1. Plots were generated by using PYTHON's Matplotlib Library⁹².

a)



b)



c)

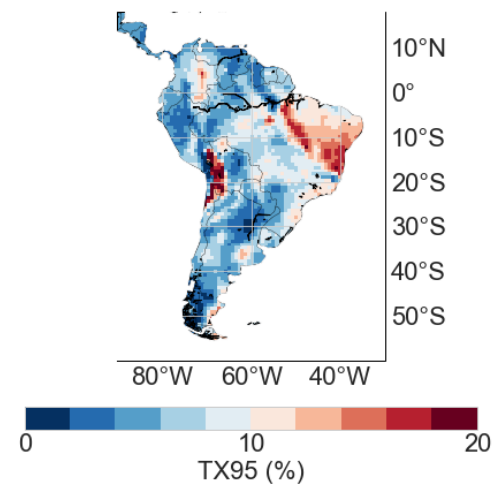


Fig. S4. TX95 estimates computed over the period 2006-2015 from different reanalysis datasets: a) the Climate Prediction Center (CPC) dataset; b) NCEP-DOE Reanalysis 2; c) ERA-Interim (ERA-Interim). For the plots in this figure, the base period 1979-2005 was used. Plots were generated by using PYTHON's Matplotlib Library⁹².

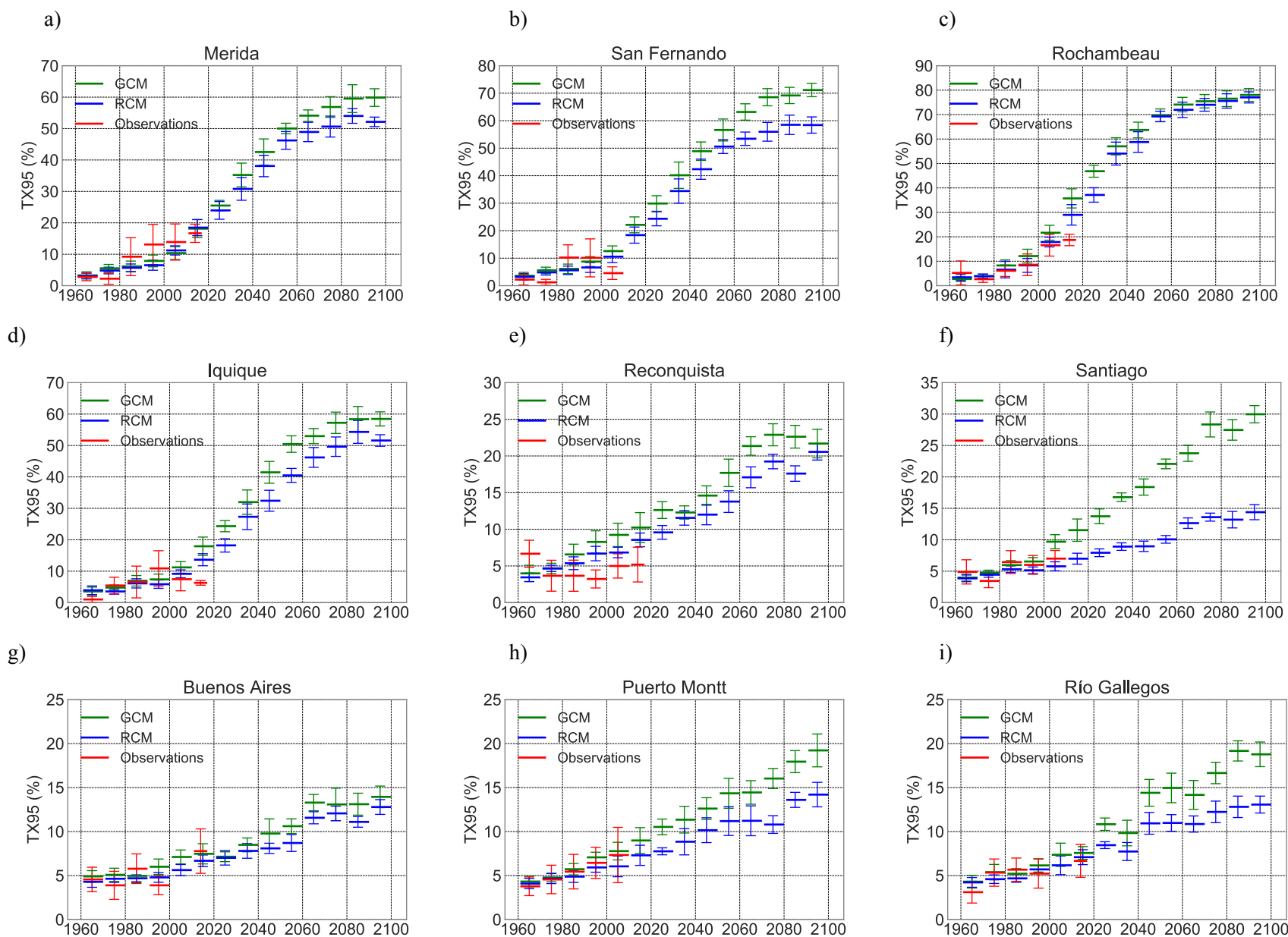


Fig. S5: Share of extremely warm DJF days (TX95) from observations over the period 1961-2016 (red lines), as well as from RCM simulations (blue lines) and from GCM data (green lines), over the period 1961-2005 and over the period 2006-2100 (under the RCP4.5 scenario). a) Merida; b) San Fernando; c) Rochambeau; d) Iquique; e) Reconquista; f) Santiago; g) Buenos Aires; h) Puerto Montt; i) Río Gallegos. Error bars for each decade are based on the standard deviation computed by using annual TX95 estimates. Plots were generated by using PYTHON's Matplotlib Library⁹².

Table S1: HW metrics and TX95 estimates over the base period 1961-1990, and over the period 2046-2055 (under the RCP4.5 scenario) for selected cities.

	HWD [days]		HWF [days]		HWN		HWA [°C]		TX95 [%]	
	1961-1990	2046-2055	1961-1990	2046-2055	1961-1990	2046-2055	1961-1990	2046-2055	1961-1990	2046-2055
Bogotá	6	19	2	44	0,5	5	1	3	5	54
Buenos Aires	4	4	1	3	0,3	1	3	4	5	9
Caracas	4	13	2	28	0,6	4	1	3	5	34
Fortaleza	10	33	3	46	0,5	3	1	2	5	52
Guayaquil	5	19	2	35	0,5	4	1	2	5	45
Iquique	5	14	3	31	0,6	4	1	2	5	36
Lima	6	16	2	32	0,5	4	1	2	5	42
Mérida	5	13	2	35	0,4	4	1	2	5	46
Puerto Montt	4	5	1	5	0,4	1	5	6	5	10
Reconquista	4	6	2	9	0,5	2	2	3	5	16
Río Gallegos	3	4	1	4	0,2	1	4	5	5	12
Rochambeau	9	43	3	61	0,5	3	1	2	5	70
San Fernando	6	24	3	42	0,6	4	1	2	5	51
Santa Cruz	5	7	2	13	0,5	3	2	3	5	21
Santiago	4	4	1	4	0,3	1	3	4	5	10
Sao Paulo	8	18	3	24	0,4	3	1	1	5	27